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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 09/590,684  | 06/09/2000  | Joseph M. Cannon     | CANNON 103-92-50     | 2761             |
| 7590  | 04/05/2004  |                      | EXAMINER             |                  |
| Farkas & Manelli PLLC<br>7th Floor<br>2000 M Street NW<br>Washington, DC 20036-3307 |             |                      | BRINEY III, WALTER F |                  |
|   |             |                      | ART UNIT             | PAPER NUMBER     |
|   |             |                      | 2644                 | (0)              |

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                     |               |
|------------------------------|---------------------|---------------|
| <b>Office Action Summary</b> | Application No.     | Applicant(s)  |
|                              | 09/590,684          | CANNON ET AL. |
|                              | Examiner            | Art Unit      |
|                              | Walter F Briney III | 2644          |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 02 March 2004.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-27 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-6, 10-19 and 22-25 is/are rejected.  
 7) Claim(s) 7-9, 20, 21, 26, and 27 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-6, 10-19, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (US Patent 5,572,575) in view of Kato et al. (US Patent 3,952,166).

Claim 1 is limited to an **audio path attenuation controller for a cordless telephone**. Yamamoto discloses a **cordless telephone** (figure 1). Yamamoto discloses that the handset and base unit of the phone are capable of operating in speakerphone mode simultaneously (column 8, lines 36-46). Yamamoto further discloses a speakerphone control apparatus (figure 5, element 28), which performs a simplistic energy measurement to determine which party is talking, and to adjust path attenuation values to reduce the possibility of howling (column 8, line 61-column 9, line 6). However, since the distance between the handset and base unit are variable, Yamamoto will suffer from switching thresholds that do not adjust to the distance between speakers. Therefore, Yamamoto anticipates all limitations of the claim with the exception of a **proximity determinator to repeatedly determine a distance between a handset of said cordless telephone and a base unit of said cordless telephone**. Kato teaches measuring the distance of acoustic coupling paths to better effect the

thresholds and attenuation applied (column 2, line 43-column 3, line 13). An acoustically coupled path includes any speaker/microphone combination that creates a roundabout, which results in howling if the gain of the roundabout is greater than unity. Such a roundabout is disclosed in Yamamoto (Yamamoto, figure 5, elements 24→6 and 4→23). Kato teaches that when a distance crosses an old threshold a reset clears the old threshold and a new threshold is calculated (i.e. **repeatedly determine a distance**) (column 7, lines 16-39). Yamamoto in view of Kato would then teach **an attenuator to attenuate an audio path between said handset and said base unit based on said repeatedly determined distance**. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the variable distance measurement as taught by Kato for the purpose of adjusting the attenuation factors of Yamamoto because the acoustic coupling paths of Yamamoto are dynamically changing in distance, and Kato adjusts for changing distances.

Claims 15 and 22 are essentially the same as claim 1, as covered by Yamamoto in view of Kato. However, both claims 15 and 22 have an additional limitation wherein: **attenuating a signal when said handset is within a predetermined distance to said base unit**. Kato teaches that a worst-case condition is continuously memorized and updated (column 3, lines 2-13), so that appropriate attenuation can be provided to reflect the predetermined distance. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 2 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato, wherein:**

**said cordless telephone has a speakerphone functionality;** Yamamoto discloses a cordless telephone system having a speaker phone function (column 1, lines 11-27).

**Said effected attenuation reducing instability in audible feedback between said handset and said base unit;** Kato discloses that if the gain of an acoustic loop, comprising a received signal of a loudspeaker and a received signal of a microphone, exceeds unity howling occurs, but inserting a loss so that the gain is below 0dB prevents howling (column 1, lines 22-49). Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 3 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato, wherein: said given attenuation is a fixed amount of attenuation based on said determined distance being less than or equal to a given threshold proximity distance between said handset and said base unit;** Kato discloses a worst case attenuation based on the closest position (i.e. predetermined closest distance) a microphone and speaker can be before attenuation makes it impossible to communicate. Attenuation can never be greater than this worst case amount (column 2, lines 12-19 and lines 43-49). Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 4 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato, wherein: said given attenuation is a variable amount of attenuation based on a relationship between a desired amount of attenuation and said determined distance;** Kato discloses that the amount of loss (i.e. attenuation) automatically decreases (i.e.

variable) to a minimum amount to prevent howling (i.e. desired amount of attenuation) in accordance with the condition of using the telephone set, such as in the distance of the microphone from the speaker (column 2, lines 50-56 and column 3, lines 2-13).

Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 5 is limited to the audio path attenuation controller for a cordless telephone according to claim 4, as covered by Yamamoto in view of Kato, wherein: said desired amount of attenuation is determined from a look up table;** examiner takes Official Notice of the fact that look up tables are well known to those of ordinary skill in the art to be used to reduce computational complexity. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the results of the comparators in Kato to index a lookup table that stored the correct variable loss results for the purpose of easing the computational complexity (MPEP 2144.03).

**Claim 6 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato, wherein said proximity determinator further comprises: a receive signal strength indicator module;** Kato discloses that the received signal output on the speaker and the round signal picked up by the microphone (i.e. acoustically coupled signal) are compared in value (i.e. signal strength) to determine the distance between the microphone and the loudspeaker (column 3, lines 2-13). Therefore, Yamamoto in view of Kato discloses all limitations of the claim.

**Claim 10 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato, wherein:**

**said proximity determinator determines said distance only when said handset and said base unit are operating simultaneously;** since both the handset and base of the cordless telephone must both be powered to operate it is inherent that proximity determination occurs only when both are operating simultaneously. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 11 is limited to the audio path attenuation controller for a cordless telephone according to claim 10, as covered by Yamamoto in view of Kato, wherein at least one of said handset and said base unit is operating in a speakerphone mode when said distance is determined;** Kato discloses determining distance between a microphone and loudspeaker to limit their acoustic coupling, which inherently only occurs in a speakerphone mode. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 12 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato, wherein: said attenuation is a muting of said audio path;** Kato discloses a means for attenuating an audio path where attenuation is essentially the same as muting.

Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 13 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato, wherein: said attenuation is variable in relationship to a distance between said handset and said base unit;** this is essentially the same as claim 4, as covered by Yamamoto in

view of Kato. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

Claim 14 is limited to **the audio path attenuation controller for a cordless telephone according to claim 1**, as covered by Yamamoto in view of Kato, **wherein: said attenuation is a fixed amount of attenuation**; this is essentially the same as claim 3, as covered by Yamamoto in view of Kato. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

Claim 16 is limited to **the method of attenuating an audio path of a cordless telephone according to claim 15**, as covered by Yamamoto in view of Kato, **further comprising: placing said cordless telephone in a speakerphone mode**; Kato discloses determining distance between a microphone and loudspeaker to limit their acoustic coupling, which inherently only occurs in a speakerphone mode. **Said attenuation reducing instability in audible feedback between said handset and said base unit**; Kato discloses that if the gain of an acoustic loop, comprising a received signal of a loudspeaker and a received signal of a microphone, exceeds unity howling occurs, but inserting a loss so that the gain is below 0dB prevents howling (column 1, lines 22-49). Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

Claim 17 is limited to **the method of attenuating an audio path of a cordless telephone according to claim 16**, as covered by Yamamoto in view of Kato, **wherein: said at least one audio path is a path from a microphone of said handset**; Kato discloses a voice switch that controls the loss in a phone to prevent howling in an audio

loop that includes a received signal path from a microphone (column 3, lines 2-13).

Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

Claim 18 is limited to **the method of attenuating an audio path of a cordless telephone according to claim 15**, as covered by Yamamoto in view of Kato, **further comprising: determining simultaneous operation of said handset and said base unit of said cordless telephone**. Kato discloses preventing howling in an audio loop that is formed between a loudspeaker as part of a base unit of a cordless phone and a microphone (i.e. handset); an audio loop would not exist unless both the microphone and loudspeaker were in operation simultaneously, such that when an audio loop is formed, simultaneous operation is inherently determined. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

Claim 19 is limited to **the method of attenuating an audio path of a cordless telephone according to claim 15**, as covered by Yamamoto in view of Kato, **wherein: said proximity is determined using a receive signal strength indicator of a received signal**; Kato discloses that the received signal output on the speaker and the round signal picked up by the microphone (i.e. acoustically coupled signal) are compared in value (i.e. signal strength indication) to determine the distance between the microphone and the loudspeaker (column 3, lines 2-13). Therefore, Yamamoto in view of Kato discloses all limitations of the claim.

Claim 23 is limited to **the apparatus for attenuating an audio path of a cordless telephone according to claim 22**, as covered by Yamamoto in view of Kato, **wherein: said at least one audio path is a path from a microphone of said**

**handset**; Kato discloses a voice switch that controls the loss in a phone to prevent howling in an audio loop that includes a received signal path from a microphone (column 3, lines 2-13). Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 24 is limited to the apparatus for attenuating an audio path of a cordless telephone according to claim 22**, as covered by Yamamoto in view of Kato, **further comprising: means for determining simultaneous operation of said handset and said base unit of said cordless telephone**. Kato discloses preventing howling in an audio loop that is formed between a loudspeaker as part of a base unit of a cordless phone and a microphone (i.e. handset); an audio loop would not exist unless both the microphone and loudspeaker were in operation simultaneously, such that when an audio loop is formed, simultaneous operation is inherently determined. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim.

**Claim 25 is limited to the apparatus for attenuating an audio path of a cordless telephone according to claim 22**, as covered by Yamamoto in view of Kato, **wherein said means for determining comprises: a receive signal strength indicator module**; Kato discloses that the received signal output on the speaker and the round signal picked up by the microphone (i.e. acoustically coupled signal) are compared in value (i.e. signal strength indication) to determine the distance between the microphone and the loudspeaker (column 3, lines 2-13). Therefore, Yamamoto in view of Kato discloses all limitations of the claim.

***Response to Arguments***

Applicant's arguments with respect to claims 1-6, 10-19, and 22-25 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments, see RCE, filed 2 march 2004, with respect to claims 7-9, 20, 21, 26, and 27 have been fully considered and are persuasive. The previous rejections under 35 U.S.C. 103(a) involving the combination of Yamamoto in view of Kato and further in view of Ravi covering claims 7, 20, and 26 and the rejections involving the combination of Yamamoto in view of Kato and further in view of Ayoub covering claims 8, 9, 21, and 27 have been withdrawn.

***Allowable Subject Matter***

Claims 7-9, 20, 21, 26, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 7 is limited to **the audio path attenuation controller for a cordless telephone according to claim 1**, as covered by Yamamoto in view of Kato. Kato teaches a very specific method of measuring the distance of an acoustically coupled path. When this procedure is applied to the speakerphone of Yamamoto, distance is measured between all paths of acoustic coupling (Yamamoto, figure 5, elements 24→6 and 4→23). There is no teaching in the prior art to suggest measuring the distance between a cordless handset and base unit besides that provided by Yamamoto in view of Kato. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim

with the exception wherein said proximity determinator further comprises: a round trip delay measurement module. Thus, claim 7 is allowable

Claims 20 and 26 are allowable for the same reasons as in claim 7.

Claim 8 is limited to the audio path attenuation controller for a cordless telephone according to claim 1, as covered by Yamamoto in view of Kato. Kato teaches a very specific method of measuring the distance of an acoustically coupled path. When this procedure is applied to the speakerphone of Yamamoto, distance is measured between all paths of acoustic coupling (Yamamoto, figure 5, elements 24→6 and 4→23). There is no teaching in the prior art to suggest measuring the distance between a cordless handset and base unit besides that provided by Yamamoto in view of Kato. Therefore, Yamamoto in view of Kato makes obvious all limitations of the claim with the exception wherein said proximity determinator further comprises: a global positioning satellite system. Thus, claim 8 is allowable.

Claim 9 is allowable because it is dependent on claim 8.

Claims 21 and 27 are allowable for the same reasons as in claim 8.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F Briney III whose telephone number is 703-305-0347. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WFB  
3/29/04

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PRIMARY EXAMINER